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# The effect of eight weeks aerobic exercise in swimming pool on the mental health of men personnel of NISOC

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**Abstract**

Depression and anxiety are disorders that between 9 to 26 percent of women and 5 to 12 percent of men have complained them (Robin, 1984).So the aim of this research was the examination of The effect of eight weeks aerobic exercise of run in swimming pool on the mental health (Physical complaint, Anxiety, Disorder in Social adequacy, Depression) of men personnel of National Iranian South Oil Company(NISOC). This is a semi experimental study that has been done by experimental and control groups. For evaluation of mental health the questionnaire GHQ-28 by (Cold Berg and Hiller, 1979) was used. In this research the population of research was all men personnel ($n$ = 500) *(age 45-55)* of NISOC. After their mental health evaluation with 1.5 upper standard deviation of (mean=51.73+12.95) 40 people was selected as statistical sample and divided randomly in two groups. Exercise program of experimental group was 30 minutes running, 3 sessions per week with intensity of %60 to %70 of MHR (Gaszkow, 2004 & Netz, 2005). Statistical analyze ion of data has been done by computer and SPSS program with the use of (T-test) statistical method. The findings show that aerobic exercise of run in swimming pool has a significant positive effect on mental health and all it dimensions. So on basis of these results recommend to patients that they suffer than mental disorders do aerobic exercise in swimming pool as good treatment and reduce of pressure of these disorders.


*Keywords:* Aerobic Exercise, Swimming Pool, Mental Health;

## 1. Introduction

By focusing on the physical structure of human being, it will be recognized that man naturally needs different physical activities for their growth and evolution. Man's body and spirit must not be considered as to separated factors, they must be considered both together; the necessary basis for their growth and efflorescence must be available, because that absolute human is one whose existence girths must be grown. Nowadays psychologists know well that the Man's spirit is directly affected by his physical and body conditions, and reciprocally Man's body gestures are affected by his psychic and intellectual behaviour. (Norbert et al.,2004) in their research which named considering the relation between physical activities with mental health and life quality among German society concluded that there is positive correlation between stress and physical disabilities with life and health damages of people. Also there is positive relation between high physical activities with good life quality. (Mirchel et al.,2004) considered the effect of exercise in water on depression, pain and disabilities of 261 women, they reported the improvement of depression signs in exercising group.(Benson et al.,2009) conducted the effect of aerobic exercises

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on sexual and depression of 200 clinical patients, they concluded that aerobic exercises can decrease depression. From the above said, it can be concluded that people who don't participate in physical activities and have a sedentary life, are in physical and mental risks. Such people would have physical disorders such as cardio vascular, diabetes, blood pressure, several kind of joint pains, and also would have mental disorders such as depression, stress, disorder in social adequacy, decrease in self steam and self confidence. Depression and anxiety are disorders that between 9 to 26 percent of women and 5 to 12 percent of men have complained them (Robin, 1984) Therefore in this research for help patients who suffer than mental disorders we try that do the effect of eight weeks aerobic exercise of run in swimming pool on the mental health (Physical complaint, Anxiety, Disorder in Social adequacy, Depression) of men personnel 45 – 55 years of national iranian south oil company.

## 2. Methods

This is the semi-experimental study. The plan of that is pre-test and post-test. Statistical societies of this research are 500 people from staff of National Iranian South Oil Company (NISOC) who ages were between 45 to 55 years. Also for survey of mental health scores of statistical society and select of statistical sample the GHQ questionnaire by (Cold Berg and Hiller, 1979) was used. After checking the mental health of Statistical society with 1.5 standard deviation higher than the average (51.73+12.95) 56 people selected that all of them did cooper test by treadmill and also between them 40 person that they had $VO_{2max}$ close each other selected as statistical sample and randomly divided to experimental (n=20) and control groups (n=20).Also comparison of $VO_{2max}$ two groups by independent t-test show that there is no significant difference between them. In this research aerobic exercise was about 30 minutes running, 3 session per week, 8 week with intensity of %60 to %70 of MHR in the swimming pool. Since the groups were selected randomly, therefore, comparison of mental health and its dimensions in pre-test by independent t-test showed that there is no significant difference between them at the level of a $\leq 0.05$. In the stage of exercise, experimental group did 8 weeks aerobic exercises of run in swimming pool but the control group did not do any exercise and once again from both groups gave an exam as a post-test.

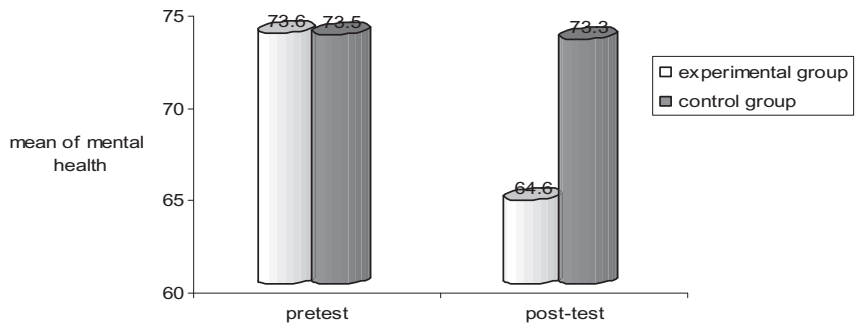
Figure 1: experimental group in swimming pool

## 3. Results

**1-** Comparison between experimental and control groups in the stage of pre-test show that there is no significant difference (P- VALUE = 0/921) in the significant level of ($a \leq 0.05$) between two groups. But the result after 8 weeks aerobic exercise in the significant level of ($a \leq 0.05$) between two groups in the stage of post-test show that there is significant difference(P- VALUE = 0/000)in the significant level of ($a \leq 0.05$) between two groups on the variable of mental health (See Table 1).

| Stage | Variable | Groups | Number | Mean | Standard deviation | Freedom Degree | Amount of t | Significant level |
|---|---|---|---|---|---|---|---|---|
| Pre-test | Mental health | exercise | 20 | 73/6 | 3/19992 | 38 | 0/1 | 0/921 |
| | | control | 20 | 73/5 | 3/11997 | | | |
| Post-test | Mental health | exercise | 20 | 64/6 | 2/52149 | 38 | -10/355 | 0/000 |
| | | control | 20 | 73/3 | 2/81490 | | | |

Also the data of the chart related to the scores of pre-test and post-test of two groups show that exercise group in the stage of post-test has a better situation than control group. And also has less mental health disorder compare control group. This result show that eight weeks aerobic exercise in swimming pool has positive effect on mental health (See graph 1).



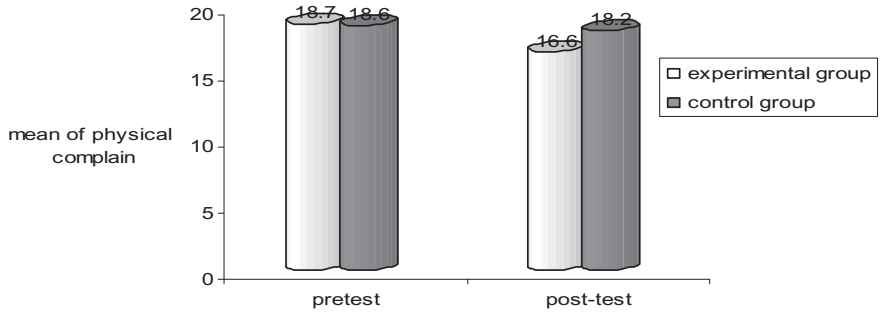

Graph1: mental health scores of two groups in pre-test and post-test

**2-** Comparison of physical complaint between experimental and control groups show that there is no significant difference (P- VALUE = 0/839) in the significant level of ($a \leq 0.05$) between two groups at the beginning of study but this difference is significant (P- VALUE = 0/001) at the post-test (See Table 2).

Table2: comparison physical complaint of two groups in pretest and post-test

| Stage | Variables | Groups | Number | Mean | Standard deviation | Freedom Degree | Amount of t | Significant level |
|---|---|---|---|---|---|---|---|---|
| Pre-test | Physical complain | exercise | 20 | 18/7 | 1/65752 | 38 | 0/204 | 0/839 |
| | | control | 20 | 18/6 | 1/42902 | | | |
| Post-test | Physical complain | exercise | 20 | 16/6 | 1/46539 | 38 | -3/584 | 0/001 |
| | | control | 20 | 18/2 | 1/44641 | | | |

Also the data of the graph related to the scores of pre-test and post-test of two groups show that experimental group has good situation that this result strongly confirm the effect of aerobic exercise in swimming pool on variable of physical complaint. (See graph 2).



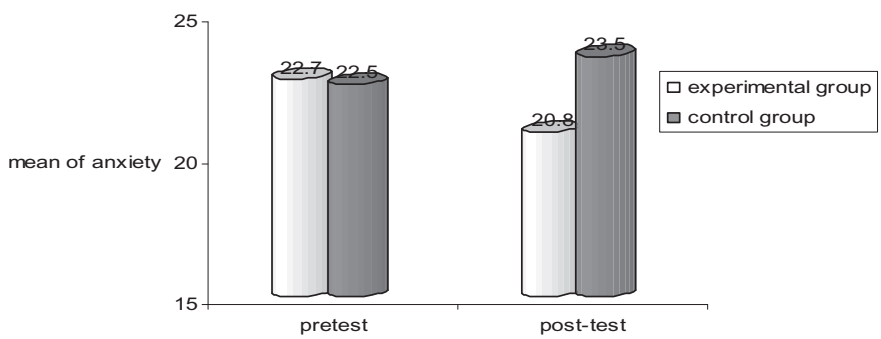

Graph2: physical complain scores of two groups in pre-test and post-test

**3-** Comparison between two groups in pre-test show that there is no significant difference (P- VALUE = 0/651) in the significant level of (a ≤ 0.05) between experimental and control groups. But the result after 8 weeks aerobic exercise in the significant level of (a ≤ 0.05) shows that there is significant difference (P- VALUE = 0/000) between two groups on the variable of anxiety (See Table 3).

Table3: comparison anxiety of two groups in pretest and post-test

| Stage | Variable | Groups | Number | Mean | Standard deviation | Freedom Degree | Amount of t | Significant level |
|---|---|---|---|---|---|---|---|---|
| Pre-test | Anxiety | exercise | 20 | 22/7 | 1/30182 | 38 | 0/456 | 0/651 |
| | | control | 20 | 22/5 | 1/46898 | | | |
| Post-test | Anxiety | exercise | 20 | 20/8 | 1/70448 | 38 | -4/682 | 0/000 |
| | | control | 20 | 23/5 | 1/46089 | | | |

Also the data of below chart about scores of pre-test and post-test of anxiety show that experimental group in the stage of post-test has a better situation than control group. And also has less anxiety compare control group. This result show that eight weeks aerobic exercise in swimming pool has positive effect on anxiety (See graph 3).



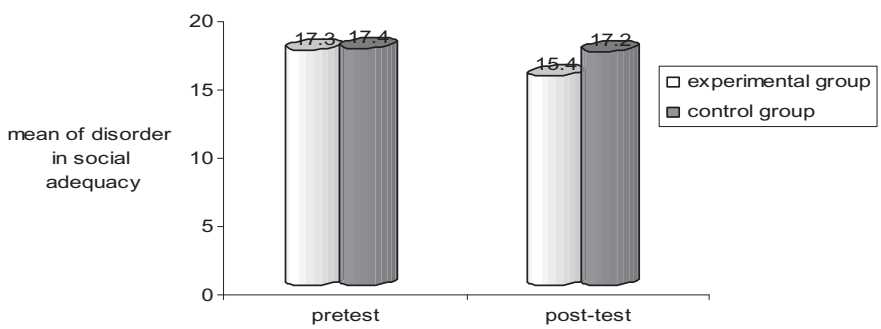

Graph3: anxiety scores of two groups in pre-test and post-test

**4-** Comparison of disorder in social adequacy between experimental and control groups show that there is no significant difference (P- VALUE = 0/666) in the significant level of (a ≤ 0.05) between two groups at the pre-test but this difference is significant (P- VALUE = 0/000) at the post-test. (See Table 2).

Table4: comparison disorder in social adequacy of two groups in pretest and post-test

| Stage | Variables | Groups | Number | Mean | Standard deviation | Freedom Degree | Amount of t | Significant level |
|---|---|---|---|---|---|---|---|---|
| Pre-test | Disorder in social adequacy | exercise | 20 | 17/3 | 1/12858 | 38 | -0/435 | 0/666 |
| | | control | 20 | 17/4 | 1/05006 | | | |
| Post-test | Disorder in social adequacy | exercise | 20 | 15/4 | 1/57196 | 38 | -4/115 | 0/000 |
| | | control | 20 | 17/2 | 1/16416 | | | |

Also the information of the graph related to the scores of pre-test and post-test of two groups shows that exercise and control groups have close score compare each other, that this result show aerobic exercise doesn't have any effect on variable of disorder in social adequacy. (See graph 4).



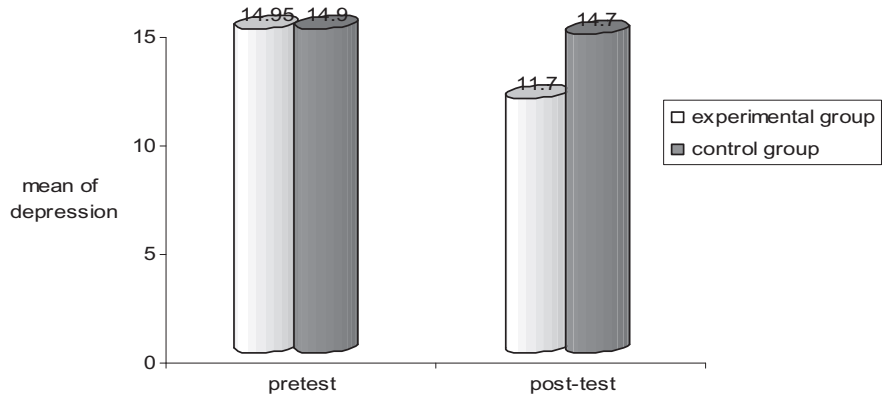

Graph4: disorder in social adequacy scores of two groups in pre-test and post-test

**5-** Comparison of pre-test between experimental and control groups show that there is no significant difference in the significant (P- VALUE = 0/928) level of (a ≤ 0.05).But the result after 8 weeks aerobic exercise show that there is significant difference (P- VALUE = 0/000) in the significant level of (a ≤ 0.05) between experimental and control groups on the variable of depression (See Table 5).

Table5: comparison depression of two groups in the stage of pretest and post-test

| Stage | Variable | Groups | Number | Mean | Standard deviation | Freedom Degree | Amount of t | Significant level |
|---|---|---|---|---|---|---|---|---|
| Pre-test | Depression | exercise | 20 | 14/95 | 1/87715 | 38 | 0/091 | 0/928 |
| | | control | 20 | 14/9 | 1/58612 | | | |
| Post-test | Depression | exercise | 20 | 11/7 | 1/33278 | 38 | -3/024 | 0/000 |
| | | control | 20 | 14/7 | 1/62546 | | | |

Also the information of below graph after 8 weeks aerobic exercise shows that experimental group has a better situation than control group. And also has less depression compare control group. This result show that 8 weeks aerobic exercise has positive effect on depression (See graph 5).




Graph5: depression scores of two groups in pre-test and post-test

## 4. Discussion and Conclusion

Many researchers believe that aerobic exercises can change several of the freeing of mediators of nerves and hormones(palmen.,2005).other great number of researches in this field show that only aerobic exercises can lead to the endorphin sprinkle and other nervous mediators and can have positive effect on people' s behaviours(Filler., 2005). Therefore considering to the results of this research we can say that aerobic exercises can bring hopeful messages for those who suffer than mental disorders such as (physical complain, anxiety, disorder in social adequacy, depression). So according to the important conclusions of this research, to people who has such diseases we will suggest that do aerobic exercises of run in swimming pool 3 time a weeks with intensity of 60% to 70% of MHR.

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